

**REMARKS*****Summary of the Amendment***

Upon entry and consideration of the instant response, claims 1 - 10 and 13 - 54 remain pending.

***Summary of the Official Action***

In the instant Office Action, the Examiner has rejected claims 1 - 10 and 13 - 54 over the art of record. By the present remarks, Applicants submit that the rejections have been overcome, and respectfully request reconsideration of the outstanding Office Action and allowance of the present application.

***Traversal of Rejection Under 35 U.S.C. § 103(a)***

Applicants traverse the rejection of claims 1 - 10 and 13 - 54 under 35 U.S.C. § 103(a) as being unpatentable over KAMPS et al. (International Publication No. WO 96/35018) [hereinafter "KAMPS"] in view of SCHIEL (U.S. Patent No. 6,004,429) or BLUHM et al. (U.S. Patent No. 5,556,511) [hereinafter "BLUHM"]. The Examiner asserts that KAMPS shows a process for making tissue paper having a decorative pattern using a decorative pattern on the forming fabric in a twin wire former. The Examiner further asserts that SCHIEL discloses a tissue maker using a crescent former using a press nip having a length of between 50 mm and 120 mm and a press force of between 2.5 MPa and 5 MPa, and that it would have been obvious to modify KAMPS to include such an arrangement. Further, the

Examiner asserts that BLUHM shows a device for transferring a wet web to a heated creping roll to improve bulk and softness, and that it would have been obvious to modify KAMPS in this manner. Applicants traverse the Examiner's assertions.

As Applicants have previously noted, the combination of features recited in the pending claims provides an apparatus and process that improve physical characteristics of the web, e.g., water absorption capacity, water absorption rate, water retention capacity, specific volume, *see* Specification, paragraph [0004]. Moreover, these physical properties of the web are improved due to the combination of features that include a forming region having at least one circulating, continuous dewatering wire comprising *at least two zones having different wire permeabilities*, which is neither taught nor suggested by the applied art of record.

Therefore, Applicants' independent claim 1 recites, *inter alia*, a forming area including at least one rotating continuous *dewatering wire with a plurality of zones having different wire permeabilities*, and *at least one shoe press*, such that the at least one shoe press has a press nip length, viewed in a belt travel direction, *greater than about 80 mm* and has a pressure profile over said press nip length with *a maximum pressing pressure less than or equal to about 2 MPa*. Independent claim 22 recites, *inter alia*, dewatering the tissue web with at least the at least one continuous *dewatering wire with said plurality of zones having different wire permeabilities*, and *pressing* the tissue web in the at least one shoe press, which

has a press nip length, viewed in a belt travel direction, *greater than about 80 mm* and which is located downstream of the forming area, such that a pressure profile over the press nip length has *a maximum pressing pressure less than or equal to about 2 MPa*. Applicants' independent claim 39 recites, *inter alia*, a forming element, at least two rotating continuous dewatering wires, in which *at least one of said two rotating continuous dewatering wires has a plurality of zones with different wire permeabilities*, arranged over said forming element, as an outer wire not in contact with said forming element and as an inner wire, and *at least one shoe press arranged downstream, relative to a wire travel direction, from said forming element*, such that the at least one shoe press has a press nip length, viewed in a belt travel direction, *greater than about 80 mm* and has a pressure profile over said press nip length with *a maximum pressing pressure less than or equal to about 2 MPa*. Applicants submit that no proper combination of KAMPS in view of SCHIEL or BLUHM teaches or suggests at least the above-noted features.

In contrast to the instant invention, KAMPS is directed to a process and apparatus in which a special forming fabric is used to form *decorative tissue* by embossing or imprinting the decoration in the web surface. This embossing or imprinting is achieved by impeding drainage of water relative to other areas of the forming fabric, which, as noted by the Examiner, results in different basis weights in the drainage impeding area and in the other areas. While the Examiner notes that basis weight is a physical characteristic of the web,

Applicants submit that, in contrast to the instant invention, the different basis weights is not the result of a dewatering wire having a *plurality of zones having different wire permeabilities*, as recited in the pending claims.

In contrast to the instant invention, KAMPS fails to provide any teaching or suggestion that the continuous wire includes a plurality of zones having different wire permeabilities, but instead teaches that drainage is impeded through the use of additional filaments, coatings, films, appliqués, etc. In other words, KAMPS merely discloses the formation of zones of different basis weight as a result of impeding dewatering in various zones, and there is no teaching or suggestion that the continuous wire of KAMPS has zones of different wire permeabilities.

Thus, Applicants submit that, contrary to the Examiner's assertions, KAMPS fails to provide any teaching or suggestion of a forming area including at least one rotating continuous dewatering wire with a plurality of zones having different wire permeabilities, as recited in the pending claims. Moreover, as acknowledged by the Examiner, Applicants note that KAMPS also fails to teach or suggest the recited press shoe and the structural features related to the press shoe.

To address the defects of KAMPS noted by the Examiner, i.e., the failure to teach or suggest a press shoe and the specifics of the press shoe, the Examiner has applied the teachings of SCHIEL and BLUHM, both of which disclose press shoes in a tissue forming

apparatus. However, neither SCHIEL nor BLUHM provide any teaching or suggestion of forming a patterned web or of a special dewatering wire design for embossing or imprinting the web, as taught by KAMPS.

Thus, Applicants submit that, as neither SCHIEL nor BLUHM teach or suggest pressing a web provided with a pattern or design, and as the art of record fails to teach or suggest regarding whether the embossed or imprinted design on the web would be preserved if pressed in the elongated shoe press of either SCHIEL or BLUHM, there is no suggestion of modifying KAMPS in the manner asserted by the Examiner.

Because the art fails to provide any teaching or suggestion for pressing an embossed or imprinted web in the extended nip shoe presses of either SCHIEL or BLUHM, and because the art certainly fails to provide any suggestion of successfully pressing such a web while maintaining the intended pattern on the web, Applicants submit that the art of record fails to provide the requisite motivation or rationale for modifying KAMPS in the manner asserted by the Examiner.

Therefore, Applicants submit that, as there is no teaching or suggestion in the art of record that KAMPS, as modified by either SCHIEL or BLUHM, would continue to operate in its intended manner, the asserted modification would not have been obvious to one ordinarily skilled in the art.

Further, Applicants submit that, as there is no teaching or suggestion in the art of

record with regard to what effect the elongated nip press would have on the embossed or imprinted design of KAMPS, Applicants submit that the only reasonable explanation for modifying KAMPS in the manner suggested by the Examiner is the use of improper hindsight following review of Applicants' invention.

Applicants further note that neither SCHIEL nor BLUHM teach or suggest the above-noted features related to the press nip length and the pressure profile having maximum pressing pressure over the length of the nip. In particular, Applicants note that neither SCHIEL nor BLUHM provide any teaching or suggest for modifying the structure of KAMPS in any manner that would render the above-noted features obvious.

While acknowledging that SCHIEL discloses a nip length between 50 mm and 120 mm, Applicants note that SCHIEL expressly recites that the maximal pressure within such a nip length should be between 2.5 MPa and 5 MPa. Thus, Applicants note that SCHIEL fails to teach or suggest operating the shoe press to exert a maximum pressing pressure of less than or equal to 2 MPa, as recited in at least independent claims 1, 22, and 39.

In this regard, Applicants note the Examiner's assertions that the term "about" is not defined by the instant application, such that it is not apparent whether a difference of  $\pm 1$  MPa would be about 2.5 MPa. Applicants note that the term "about" is a recognition of certain inherent variance or engineering tolerance in measuring or determining the pressure in the nip. However, as  $\pm 1$  MPa would result in a 60% decrease or 40% increase in the 2.5 MPa

pressure disclosed by SCHIEL, and would result in a 50% increase or decrease from the 2.0 MPa recited in the pending claims. Thus, in either regard, Applicants note that a change of  $\pm 1$  MPa would not have been about the same.

In this same regard, Applicants submit that, as the *minimum* pressure of 2.5 MPa in SCHIEL would have to be decreased by 20% to correspond to the maximum pressure recited in the pending claims, Applicants submit that there is no teaching or suggestion that 2.5 MPa is about 2.0 MPa.

Moreover, while SCHIEL indicates that the above-noted range (having a minimum pressure of 2.5 MPa) is advantageous “if a high production capacity is what is sought,” Applicants note that SCHIEL fails to provide any teaching or suggestion as to what parameters, if any, would require adjustment if high production capacity is not sought. While the Examiner has asserted that it would have been obvious that, if high production capacity is not sought, one would reduce the pressure to 2.0 MPa or below, there is no teaching or suggestion in the art of record to support the Examiner’s assertions.

In fact, SCHIEL fails to provide any teaching or suggestion of operation outside of the disclosed range, and certainly fails to suggest operating the press at a pressure below the lower limit of the range. Applicants also note that, because SCHIEL provides no guidance for operating outside of the disclosed pressure range, this document does not provide any disclosure as to what output one could expect if operated within the range asserted by the

Examiner, and certainly provides not suggestion that operation within such a range would successfully dewater the web to the extent necessary in SCHIEL. Accordingly, Applicants submit that, as the Examiner's asserted modification of SCHIEL is contrary to express teachings of the document, it is not apparent that the lower maximum pressing pressure would be sufficient to enable the press of SCHIEL to operate in its intended manner.

As the applied art fails to teach or suggest that the physical characteristics of the resulting web can be improved by the recited dewatering wire and the recited nip length and maximum pressing pressure range over the nip length recited in at least the independent claims, Applicants submit that the art of record fails to provide any teaching or suggestion of the above-noted features. Therefore, Applicants submit that the applied documents fail to teach or suggest the combination of features recited in at least independent claims 1, 22, and 39, and that the rejection under 35 U.S.C. § 103(a) is improper and should be withdrawn.

Because none of the applied documents teach or suggest at least the above-noted features of the invention, Applicants submit that no proper combination of the applied documents can render unpatentable the combination of features recited in at least independent claims 1, 22, and 39.

Applicants further note that the Examiner cannot simply ignore the structure and arrangement of the recited elements merely because a function is recited. In particular, the pending claims recite a press shoe having a defined length range, and that this shoe is



arranged to provide a pressure profile over the length of the nip having the recited maximum pressure. Thus, because the claim recites an arrangement of the shoe, such that a pressure profile having a maximum pressure of less than or equal to 2.0 MPa is provided by the shoe, Applicants submit that the claims are not merely functional language not entitled to patentable weight.

Moreover, even assuming, *arguendo*, that one were to find it obvious to modify either KAMPS in view of SCHIEL or BLUHM (which Applicants submit one would not), Applicants further submit that dependent claims 2 - 10, 13 - 21, 23 - 38, and 40 - 54, which further define the instant invention, and, therefore, further distinguish the invention over any proper combination of KAMPS in view of SCHIEL or BLUHM, recite additional subject matter that provides a separate basis of patentability. In particular, because claims 2 - 10, 13 - 21, 23 - 38, and 40 - 54 recite additional features that further define the present invention, Applicants submit that no proper combination of KAMPS in view of SCHIEL or BLUHM teaches or suggests, *inter alia*, a former including a forming element and two rotating continuous dewatering belts, said two rotating continuous dewatering belts being arranged to converge to form a stock entry gap and being conducted over said forming element as an outer belt, which does not contact said forming element, and as an inner belt, wherein at least one of said outer and said inner belts comprises said at least one rotating continuous dewatering wire with said plurality of zones having different wire permeabilities, as recited

in claim 2; said forming element comprises a forming roll, as recited in claim 3; said shoe press comprises a separate unit arranged behind, in the belt travel direction, a unit including said forming element and said two dewatering belts, as recited in claim 4; the tissue web is carried by one of the two dewatering belts subsequent to said forming element, and the tissue web and said one dewatering belt is guided through said shoe press, as recited in claim 5; said former comprises a twin wire former, as recited in claim 6; said former comprises a crescent former, and wherein said outer belt comprises said at least one dewatering wire with said plurality of zones having different wire permeabilities and said inner belt comprises a felt belt, as recited in claim 7; said shoe press comprises a shoe press unit and an opposing element, as recited in claim 8; said opposing element comprises a drying cylinder, as recited in claim 9; said opposing element comprises a Yankee cylinder, as recited in claim 10; said press nip length is less than about 200 mm, as recited in claim 13; said press nip length is a maximum of about 150 mm, as recited in claim 14; a drying zone in which the tissue web is acted upon at least partially by pressurized displacement gas, as recited in claim 15; said at least one dewatering wire with said plurality of zones having different wire permeabilities is located in an initial dewatering area, as recited in claim 16; said at least one dewatering wire with said plurality of zones having different wire permeabilities comprises a fabric formed by filling and warp yarns, as recited in claim 17; said at least one dewatering wire with said plurality of zones having different wire permeabilities comprises a fabric formed

only by filling and warp yarns, as recited in claim 18; zones of different wire permeability of said at least one dewatering wire are produced by at least one of weaving yarns of different diameter and different weave pattern, as recited in claim 19; a conditioning device assigned to said at least one dewatering wire with said plurality of zones having different wire permeabilities, as recited in claim 20; said conditioning device comprises a wire cleaning device, as recited in claim 21; the tissue machine further including a former with a forming element and two rotating continuous dewatering belts arranged to converge to form a stock entry gap and then guided over the forming element as an outer belt, which does not contact the forming element, and as an inner belt, such that at least one of said outer and said inner belts comprises said at least one rotating continuous dewatering wire with the plurality of zones having different wire permeabilities, and said process further comprises forming the tissue web between the inner and outer belts, and guiding the inner and outer belts and tissue web over the forming element, as recited in claim 23; the forming element comprises a forming roll, and said process further comprises guiding the inner and outer belts and the tissue web over the forming roll, as recited in claim 24; the shoe press is arranged as a separate from, and behind in a belt travel direction, a unit including the forming element and the two dewatering belts, as recited in claim 25; carrying, after the forming element and on one of the two dewatering belts, the tissue web, and guiding the tissue web and the one dewatering belt through the shoe press, as recited in claim 26; said former comprises a twin

wire former, as recited in claim 27; said former comprises a crescent former, and the outer belt comprises the at least one dewatering wire with the plurality of zones having different wire permeabilities, and the inner belt comprises a felt belt, as recited in claim 28; dewatering at a machine speed greater than about 1300 m/min, as recited in claim 29; dewatering at a machine speed greater than about 1500 m/min, as recited in claim 30; dewatering at a machine speed greater than about 1800 m/min, as recited in claim 31; dewatering the tissue web, in an initial dewatering area, with at least the at least one dewatering wire with the plurality of zones having different wire permeabilities, as recited in claim 32; the at least one dewatering wire with the plurality of zones having different wire permeabilities comprises a fabric formed by filling and warp yarns, as recited in claim 33; the at least one dewatering wire with the plurality of zones having different wire permeabilities comprises a fabric formed only by filling and warp yarns, as recited in claim 34; the at least one dewatering wire with the plurality of zones having different wire permeabilities comprises zones of different wire permeability formed by at least one of weaving yarns of different diameter and different weave pattern, as recited in claim 35; the at least one dewatering wire with the plurality of zones having different wire permeabilities is located in an area in which solids content of the tissue web is less than about 20%, as recited in claim 36; the at least one dewatering wire with the plurality of zones having different wire permeabilities is located in an area in which solids content of the tissue web is less than about 12%, as recited in claim 37; the at least one

dewatering wire with the plurality of zones having different wire permeabilities is located in an initial sheet forming area having a solids content of less than about 6%, as recited in claim 38; said forming element comprises a forming roll, as recited in claim 40; the at least one dewatering wire with said plurality of zones with different wire permeabilities comprises a plurality of zones in which each zone has a maximum extension of less than about 5 mm, as recited in claim 41; said maximum extension of each said zone is less than about 3 mm, as recited in claim 42; said former comprises a crescent former, and wherein said outer belt comprises said at least one dewatering wire with said plurality of zones with different wire permeabilities and said inner belt comprises a felt belt, as recited in claim 43; a suction zone located within a loop of said inner belt, and a conditioning device associated with said outer belt, as recited in claim 44; said suction zone is located in said forming roll, as recited in claim 45; an apparatus to one of control or regulate said suction zone, as recited in claim 46; said suction zone comprises at least two suction zones separated in a belt run direction, as recited in claim 47; an apparatus to one of control or regulate said at least two suction zones, as recited in claim 48; said zones of different wire permeabilities are formed by warp and weft threads, as recited in claims 49, 51, and 53; and said zones of different wire permeabilities are structured to provide at least two different dewatering speeds, as recited in claims 50, 52, and 54.

Accordingly, Applicants request that the Examiner reconsider and withdraw the

rejection of claims 1 - 10 and 13 - 54 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

***Application is Allowable***

Thus, Applicants respectfully submit that each and every pending claim of the present invention meets the requirements for patentability under 35 U.S.C. §§ 102 and 103, and respectfully request the Examiner to indicate allowance of each and every pending claim of the present invention.

***Authorization to Charge Deposit Account***

Applicants authorize the charging of any necessary fees, including any extensions of time fees required to place the application in condition for allowance by Examiner's Amendment, in order to maintain pendency of this application to Deposit Account No. 19 - 0089 .

**CONCLUSION**

In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicants' invention, as recited in each of claims 1 - 10 and 13 - 54. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Further, any amendments to the claims which have been made in this response and


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which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

Respectfully submitted,  
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